इंटरनेट मानक

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IS 9170-2 (2005): Endless haulage rope clips, Part 2: Screw Clip, Cam Clip, smallman clip and wedge clip [MED 8: Mining Techniques and Equipment]

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"Knowledge is such a treasure which cannot be stolen"

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IS 9170 (Part 2) : 2005
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भारतीय मानक

सिरारहित ढुलाई रोप क्लिप — विशिष्टि

भाग 2 स्क्रू क्लिप, कैम क्लिप, स्मालमेन क्लिप और वैज क्लिप

Indian Standard

ENDLESS HAULAGE ROPE CLIPS — SPECIFICATION

PART 2 SCREW CLIP, CAM CLIP, SMALLMAN CLIP AND WEDGE CLIP

ICS 73.100.40

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

September 2005

Price Group 9

Mining Techniques and Equipment Sectional Committee, ME 08

FOREWORD

This Indian Standard (Part 2) was adopted by the Bureau of Indian Standards, after the draft finalized by the Mining Techniques and Equipment Sectional Committee had been approved by the Mechanical Engineering Division Council.

Haulage clips are used for connecting a set of mine tubs to the haulage rope in a mine haulage system. Different types of clips are used with over-rope under rope endless haulage system.

Maximum loaded tubs and empty tubs at a time shall be attached with the rope, in such a way that the maximum draw bar pull on the clip do not exceed the safe working load.

Part 1 of this standard was published in 1979. While preparing Part 1 of this standard, it was felt necessary to issue standards covering the dimensional details of components of various types of haulage clips. Accordingly this standard has been published in three parts in this revision. Other parts in the series are:

Part 1 General requirements (*first revision*)

Part 3 Lashing chain

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

ENDLESS HAULAGE ROPE CLIPS — SPECIFICATION

PART 2 SCREW CLIP, CAM CLIP, SMALLMAN CLIP AND WEDGE CLIP

1 SCOPE

This standard (Part 2) lays down the requirements of various endless haulage clips presently in use in Indian coalmines. Each type of clip has different safe working load as given in IS 9170 (Part 1).

2 REFERENCES

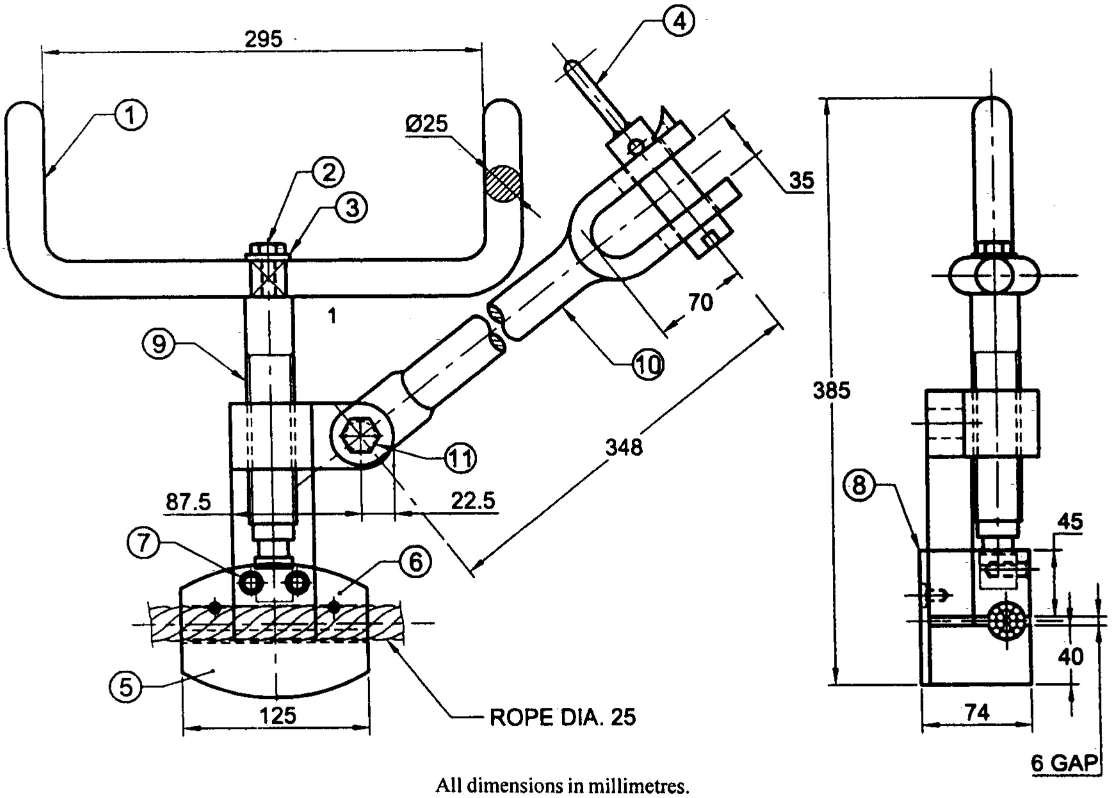
The following standards contain provisions, which through reference in this text constitute provisions of this standard. At the time of publication, the editions indicated were valid. All the standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
549 : 1974	Specification for split pins (*second revision*)
1030 : 1998	Carbon steel castings for general engineering purposes (*fifth revision*)
1148 : 1982	Hot-rolled rivet bars (up to 40 mm dia) for structural purposes (*third revision*)
1365 : 1978	Specification for slotted countersunk head screws (*third revision*)
1875 : 1992	Carbon steel billets, blooms, slabs and bars for forgings (*fifth revision*)
2016 : 1967	Specification for plain washers (*first revision*)
2155 : 1982	Specification for cold forged solid steel rivets for hot closing (6 to 16 mm diameter) (*first revision*)
2429 (Part 1) : 1987	Specification for round steel short link chains (Electric butt welded), Grade L (3): Part 1 Non-calibrated load chain for lifting purposes (*third revision*)
2759 : 1969	Higher tensile steel point hooks for use with wire rope thimbles
5517 : 1993	Steels for hardening and tempering — Specification (*second revision*)
7907 (Part 2) : 1976	Helical extension springs: Part 2 Specification for cold coiled springs made from circular section wire and bar
9170 (Part 1) : 2003	Endless haulage rope clips — Specification: Part 1 General requirements (*first revision*)

3 NOMENCLATURE, DIMENSIONS AND MATERIALS FOR VARIOUS COMPONENTS

3.1 Assembly, nomenclature and materials for various components of screw clip shall be as given below:

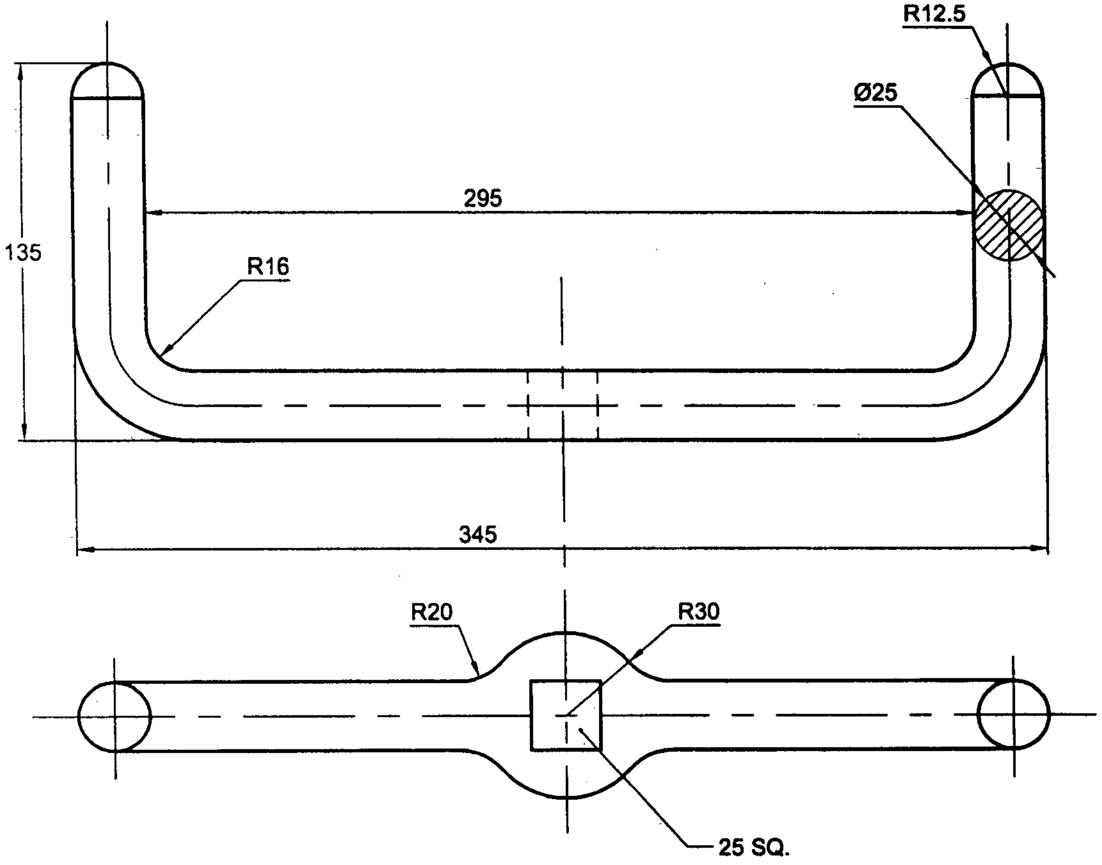
Component No.	*Component Name*	*Quantity*	*Material Specification*
1.	Handle	1	20C15 of IS 5517
2.	Hexagonal screw M10 × 1.25 with 20 mm length	1	IS 1365
3.	Washer M12	1	IS 2016
4.	Locking device	1	20C15 of IS 5517
5.	Lower jaw with body	1	do
6.	Upper jaw	1	do
7.	Countersunk screw M10 × 1.25 with 20 mm length	2	IS 1365
8.	Upper jaw back cover	1	20C15 of IS 5517
9.	Spindle adjusting bolt	1	do
10.	Hook	1	do
11.	Bolt with nut	1	do



All dimensions in millimetres.

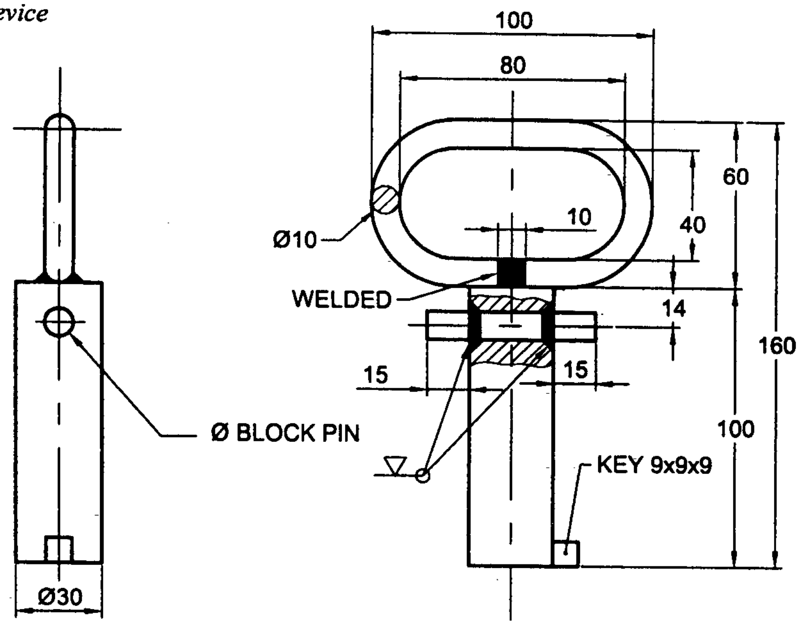
3.1.0 Dimensions of components of screw clip shall be as given in **3.1.1** to **3.1.8**.

3.1.1 *Handle*



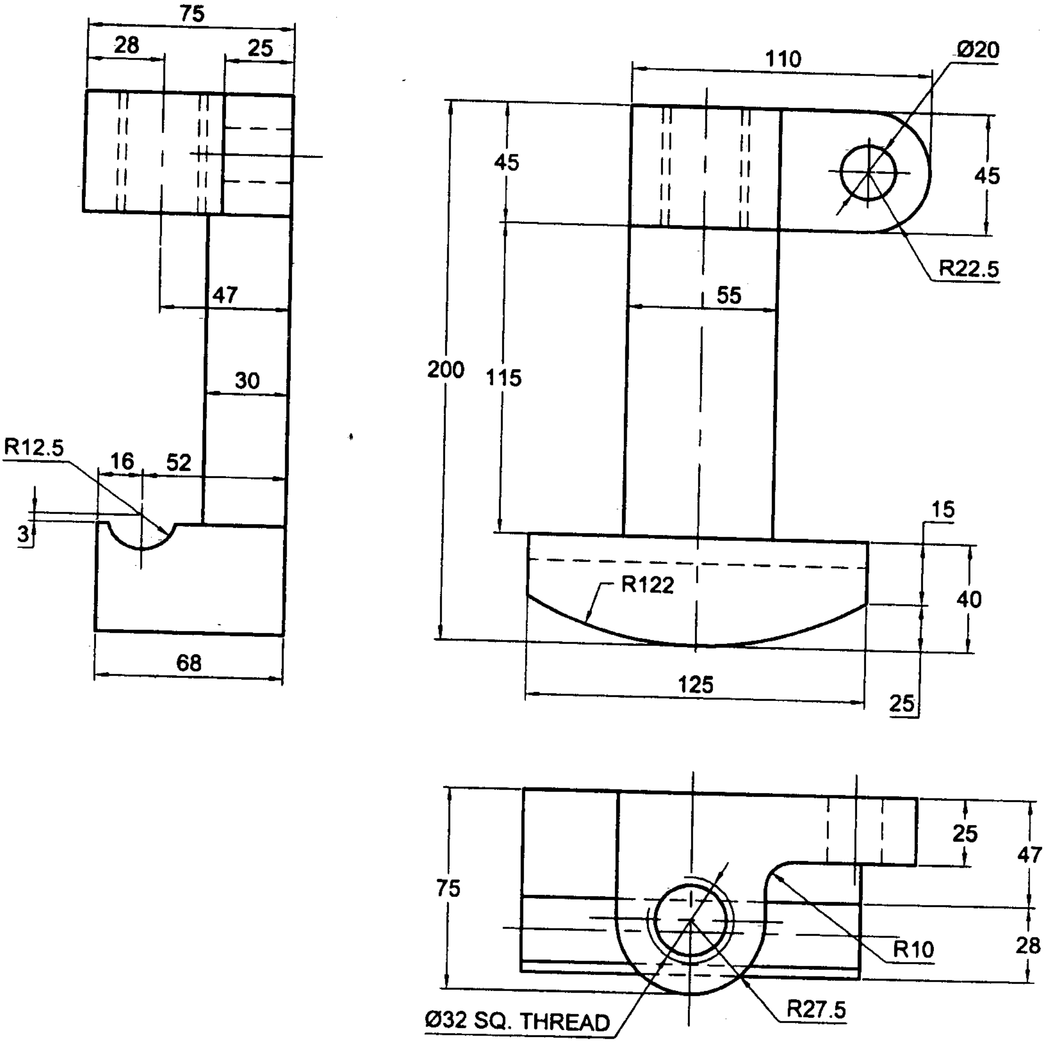
All dimensions in millimetres.

3.1.2 *Locking Device*



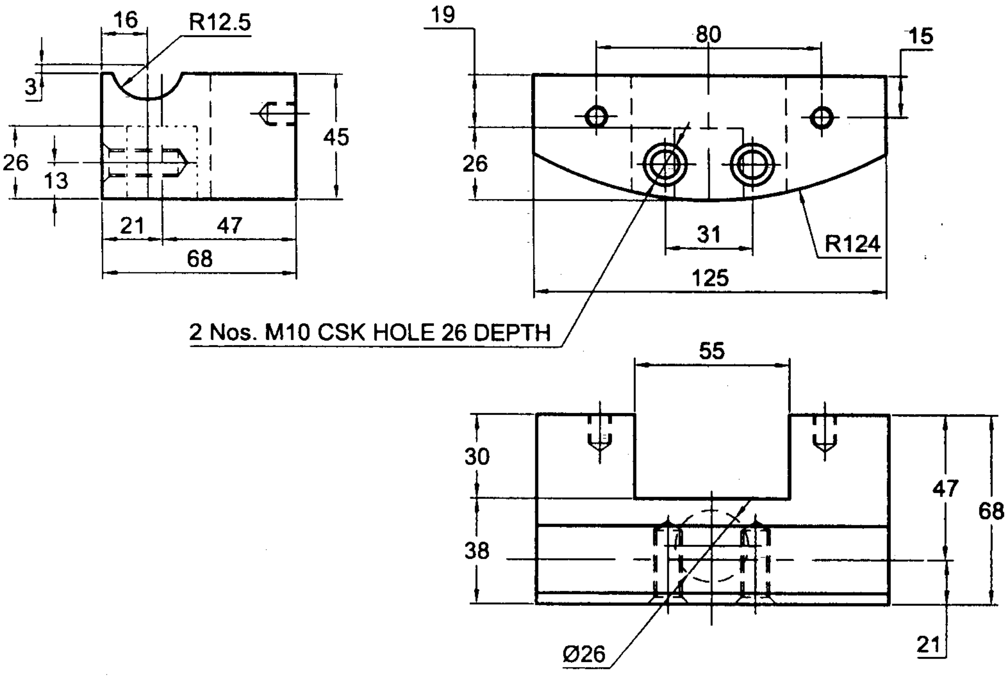
All dimensions in millimetres.

3.1.3 *Lower Jaw with Body*



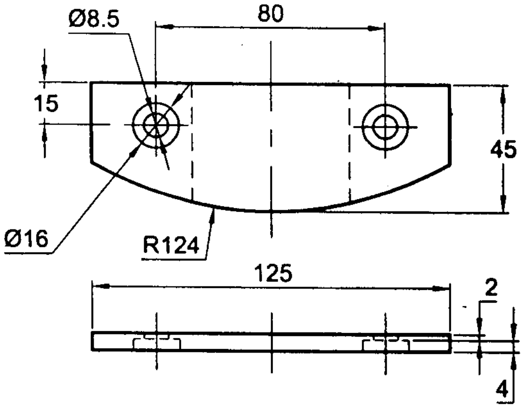
All dimensions in millimetres.

3.1.4 *Upper Jaw*



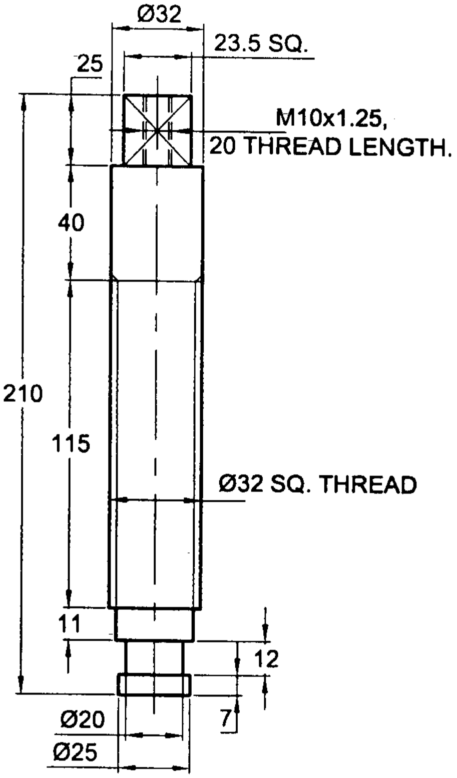
All dimensions in millimetres.

3.1.5 *Upper Jaw Back Cover*



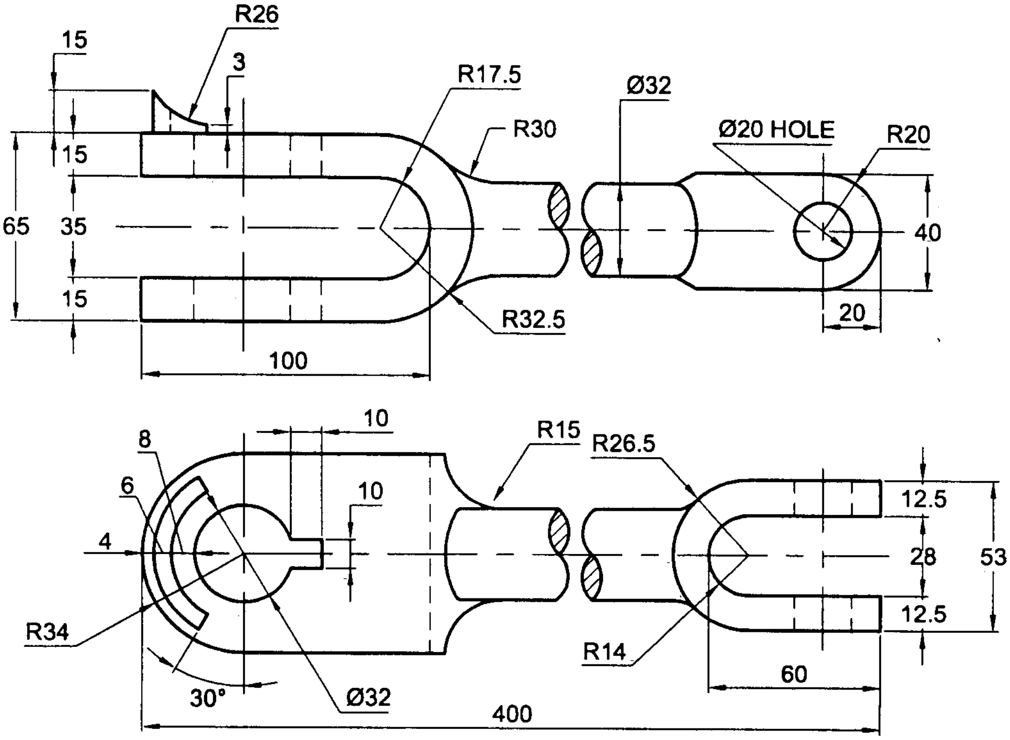
All dimensions in millimetres.

3.1.6 *Spindle Adjusting Bolt*



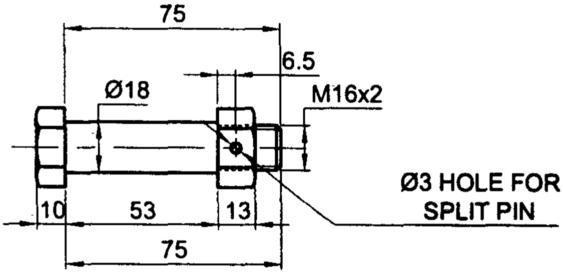
All dimensions in millimetres.

3.1.7 *Hook*



All dimensions in millimetres.

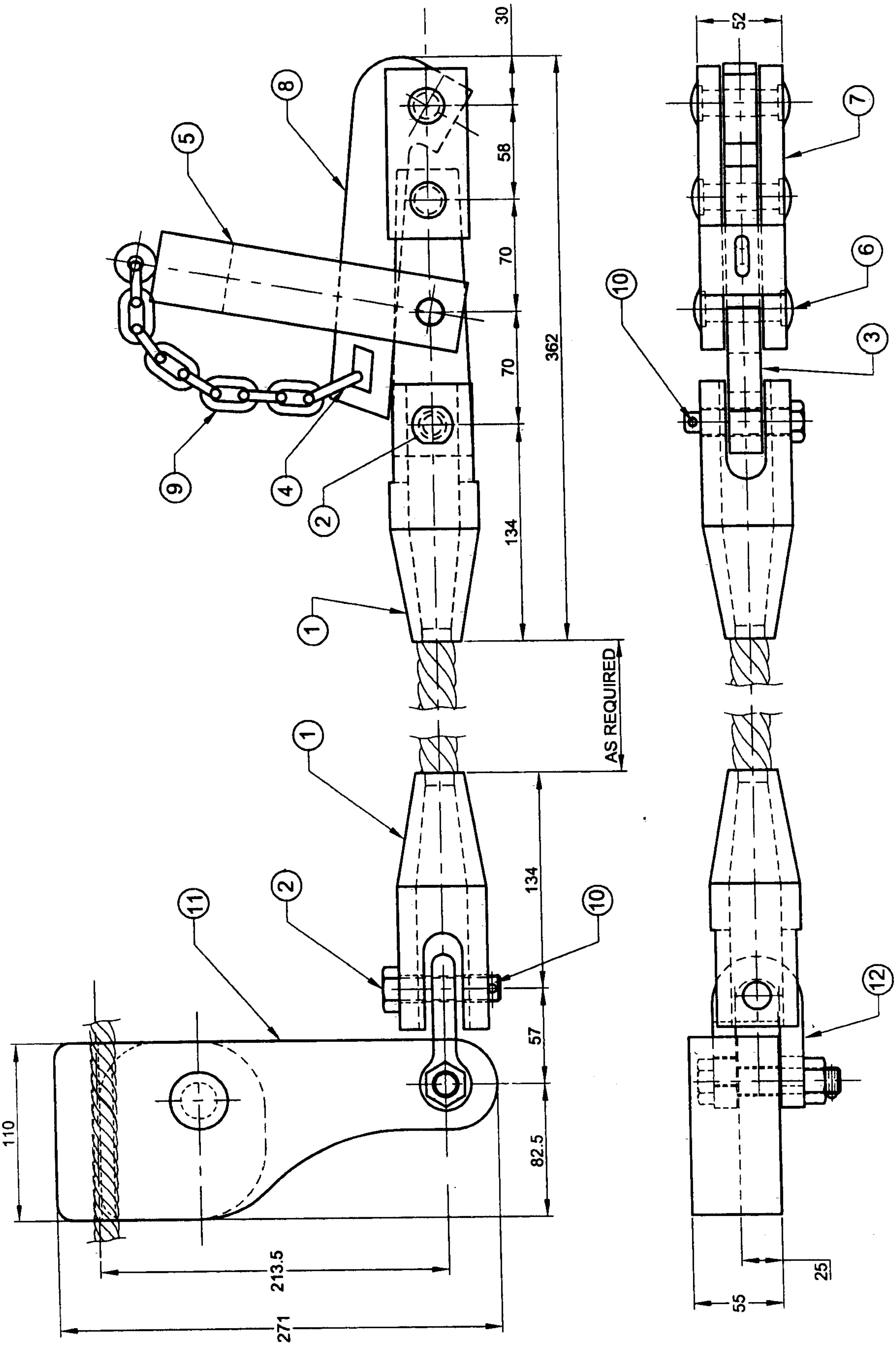
3.1.8 *Bolt and Nut*



All dimensions in millimetres.

3.2 Assembly, nomenclature and materials for various components of cam clip shall be as given below:

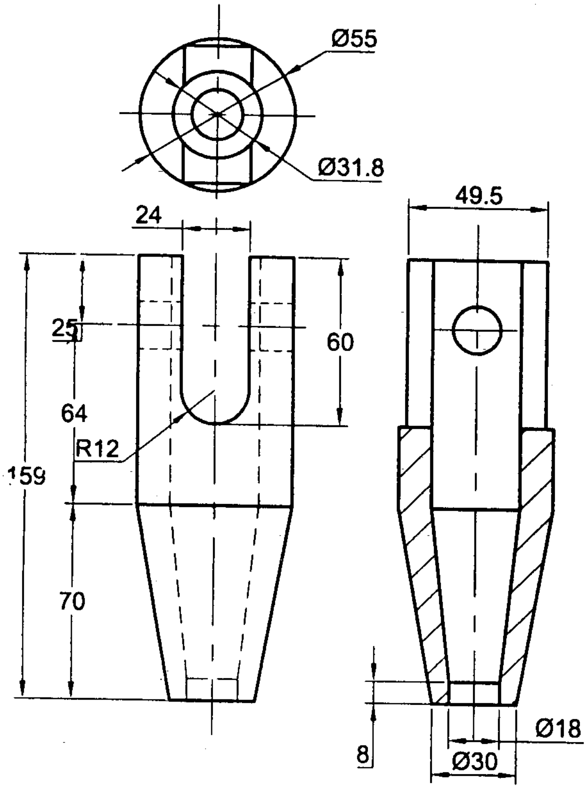
Component No.	*Component Name*	*Quantity*	*Material Specification*
1.	Rope socket	2	20C15 of IS 5517
2.	Pin	2	do
3.	Link	1	do
4.	Lock	1	do
5.	Swivel clip	1	do
6.	Rivet 16Ø	3	IS 1148
7.	Side plate	2	20C15 of IS 5517
8.	Hook	1	do
9.	Chain	1	IS 2429 (Part 1)
10.	Split pin	2	IS 549
11.	Cam clip	1	20C15 of IS 5517
12.	'D' Shackle & pin	1	do



All dimensions in millimetres.

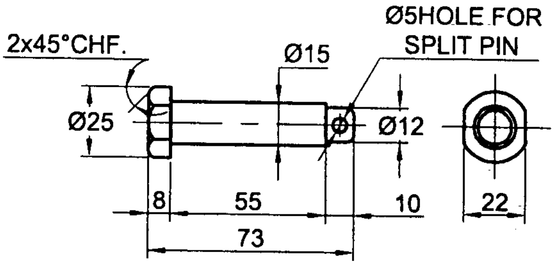
3.2.0 Dimensions of components of cam clip shall be as given in **3.2.1** to **3.2.11**.

3.2.1 *Rope Socket*



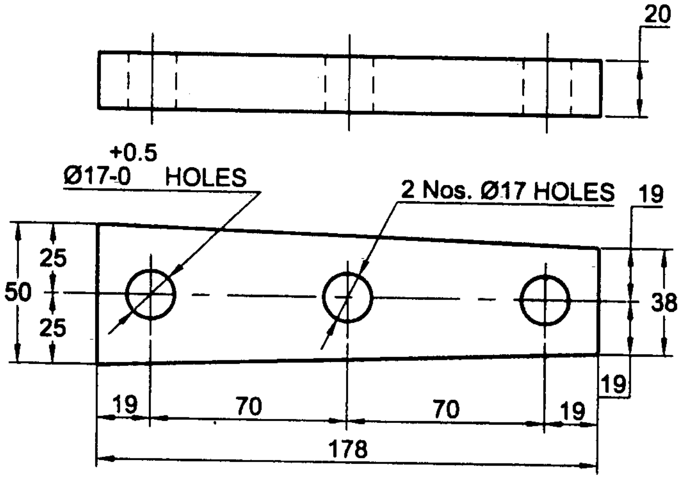
All dimensions in millimetres.

3.2.2 *Pin*



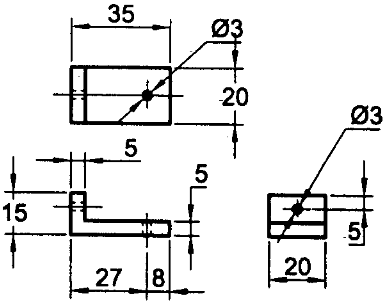
All dimensions in millimetres.

3.2.3 *Link*



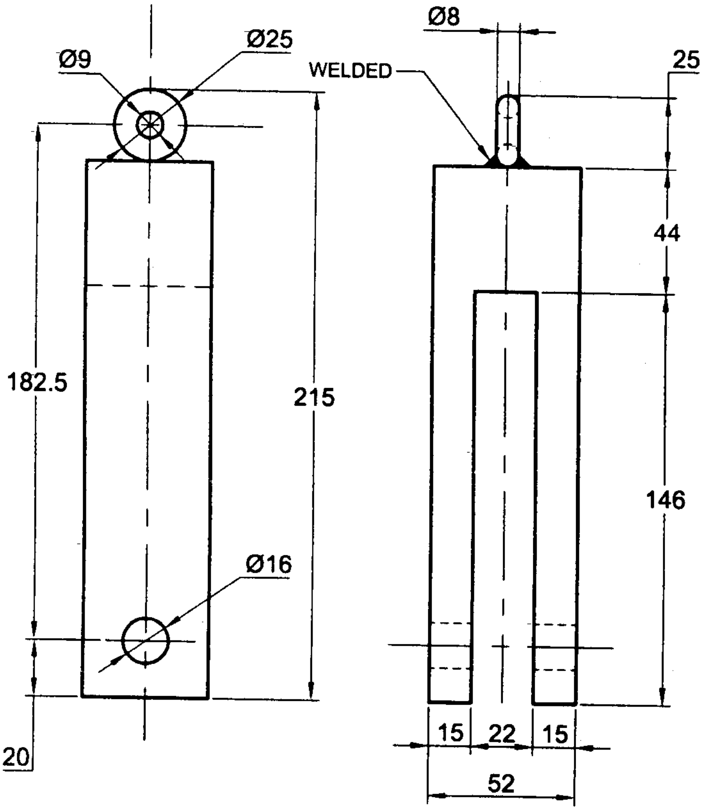
All dimensions in millimetres.

3.2.4 *Lock*



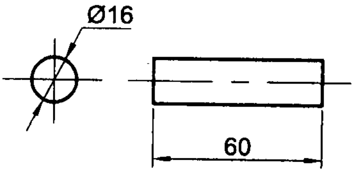
All dimensions in millimetres.

3.2.5 *Swivel Clip*



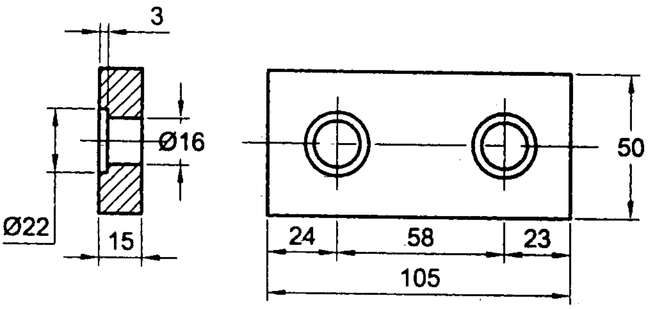
All dimensions in millimetres.

3.2.6 *Rivet*



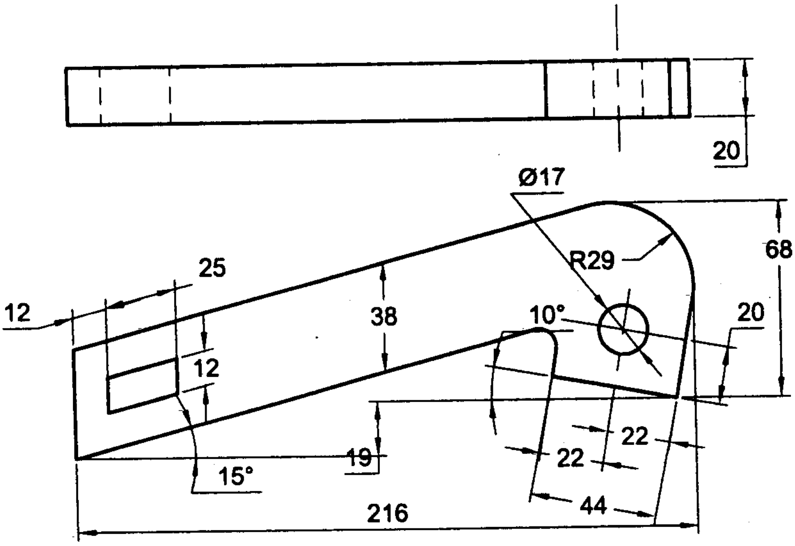
All dimensions in millimetres.

3.2.7 *Side Plate*



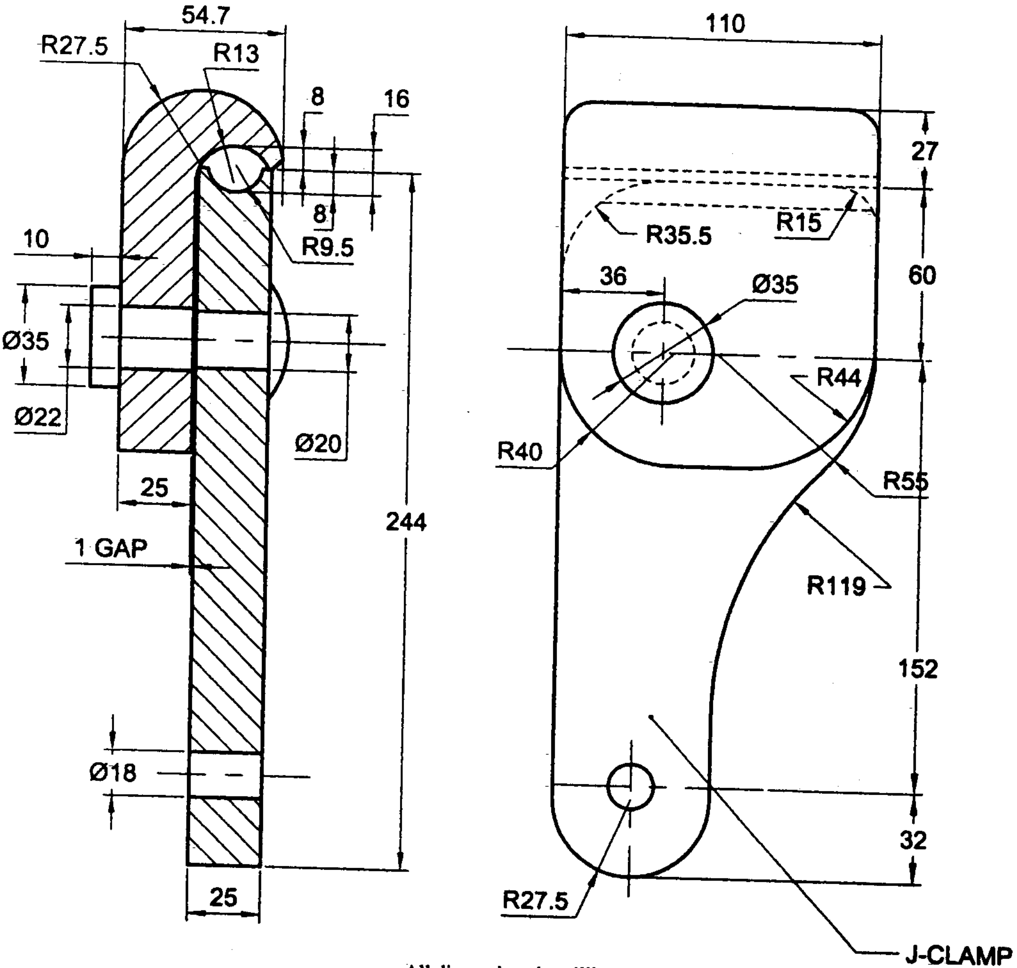
All dimensions in millimetres.

3.2.8 *Hook*



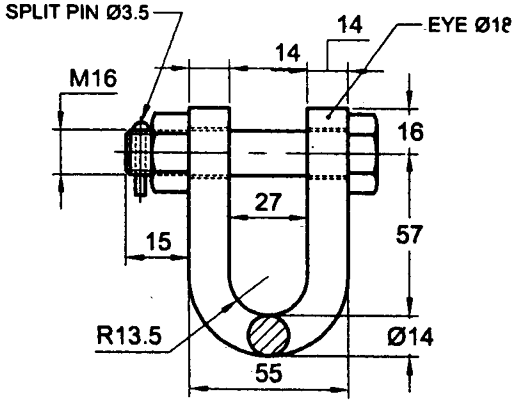
All dimensions in millimetres.

3.2.9 *Cam Clip*



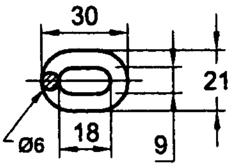
All dimensions in millimetres.

3.2.10 *'D' Shakle and Pin*



All dimensions in millimetres.

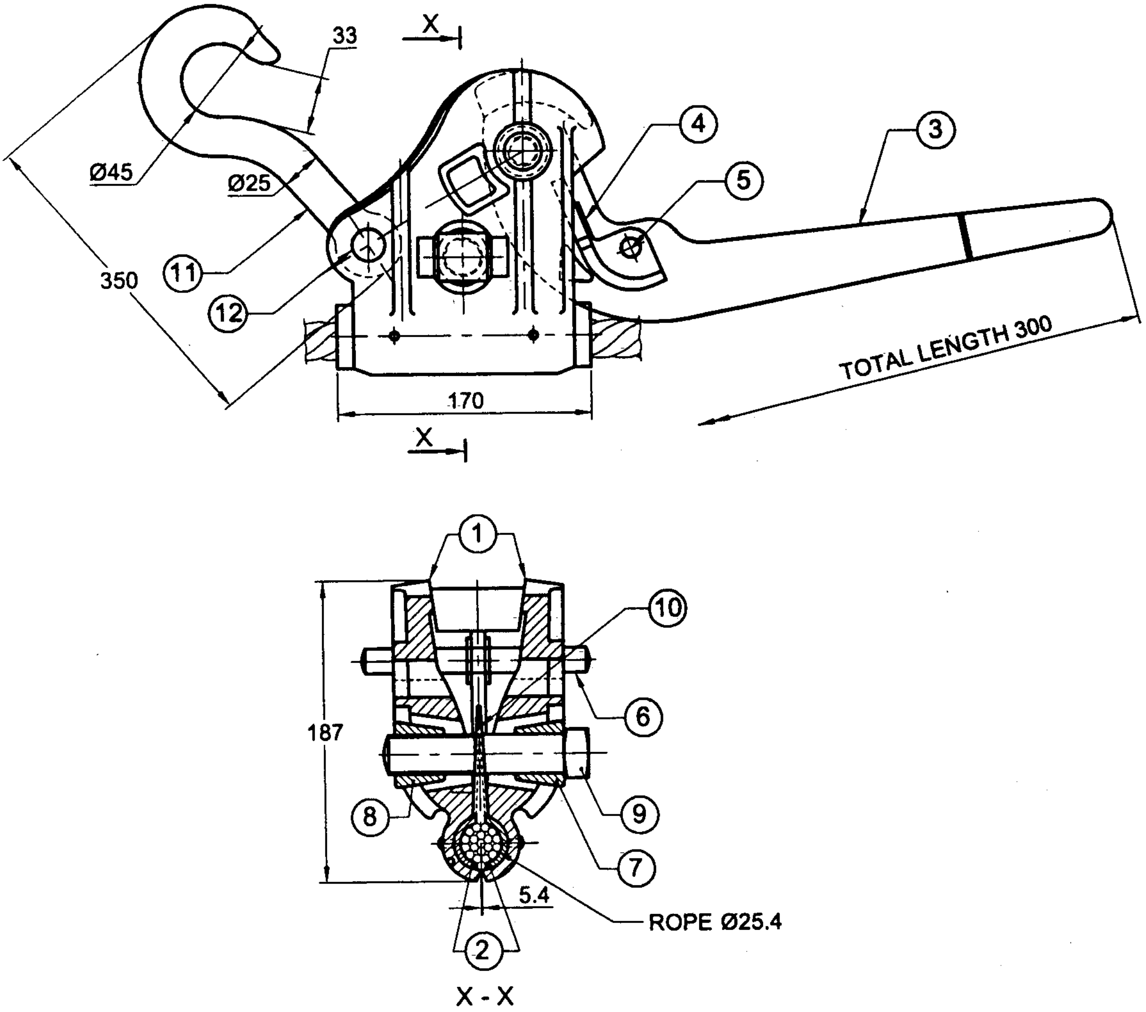
3.2.11 *Chain*



All dimensions in millimetres.

3.3 Assembly, nomenclature and materials for various components of smallman clip shall be as given below:

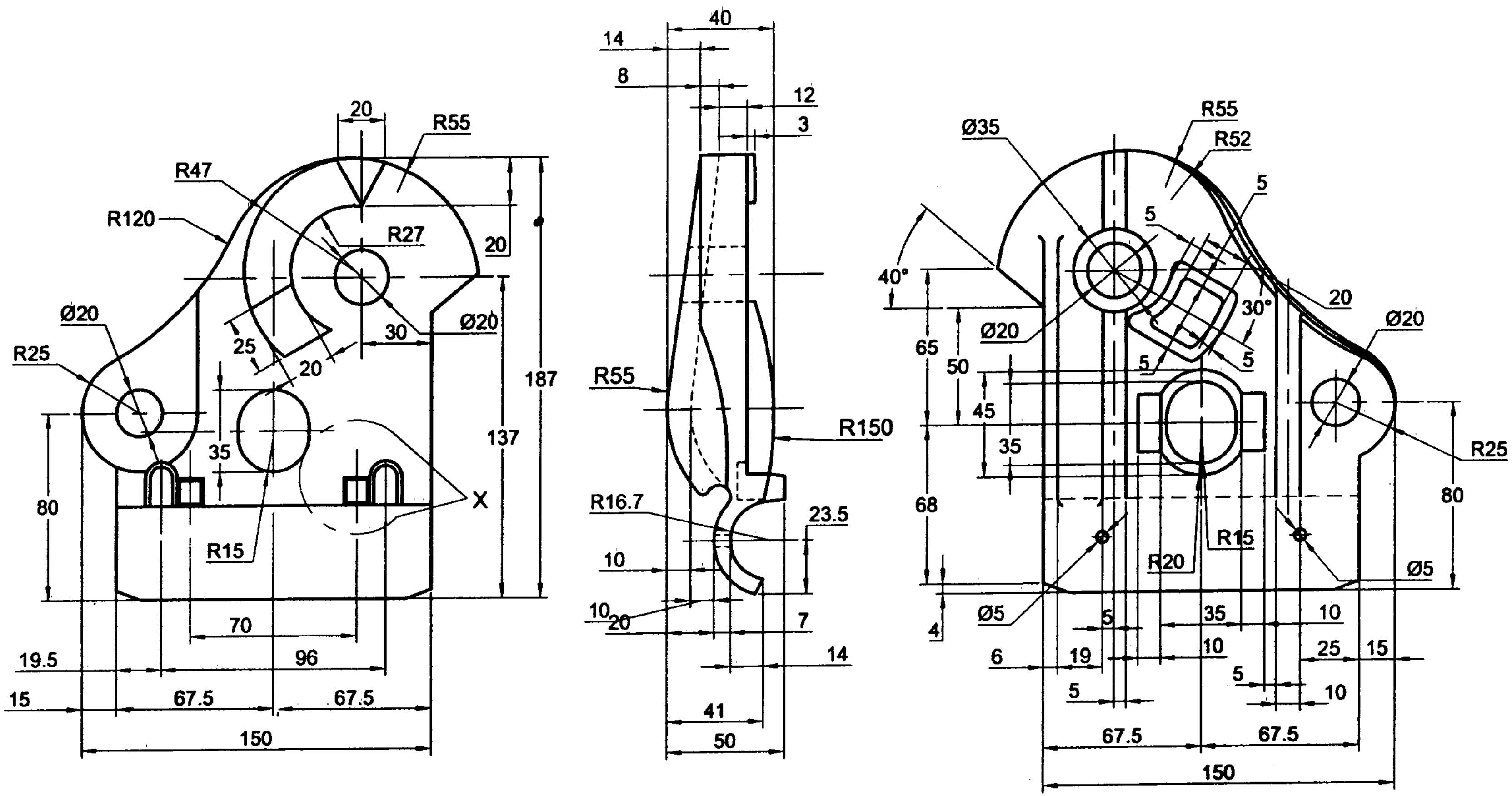
Component No.	*Component Name*	*Quantity*	*Material Specification*
1.	Cheeks	2	20C15 of IS 5517 or carbon steel casting of Grade II as per IS 1030
2.	Liners with rivet	2 (Left hand-right hand)	IS 2155
3.	Lever	1	20C15 of IS 5517
4.	Safety catch	1	do
5.	Lever pin with split pin	1	IS 1875 or carbon steel as per IS 549
6.	Pivot	1	20C15 of IS 5517
7.	Threadless nut	1	do
8.	Nut	1	do
9.	Central bolt	1	do
10.	Spring	1	IS 7907 (Part 2)
11.	Hook	1	20C15 of IS 5517
12.	Hook pin with split pin	1	do

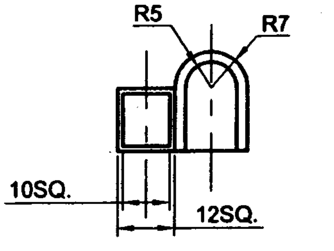


All dimensions in millimetres.

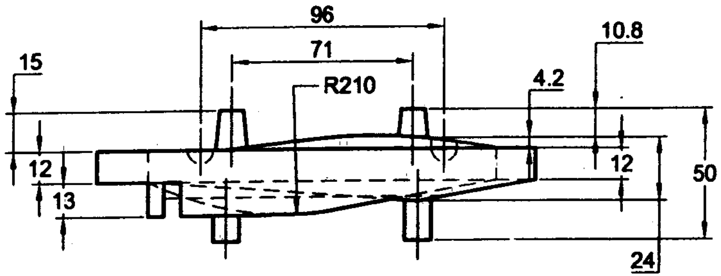
3.3.0 Dimensions of components of smallman clip shall be as given in **3.3.1** to **3.3.13**.

3.3.1 *Cheeks, Right Hand*



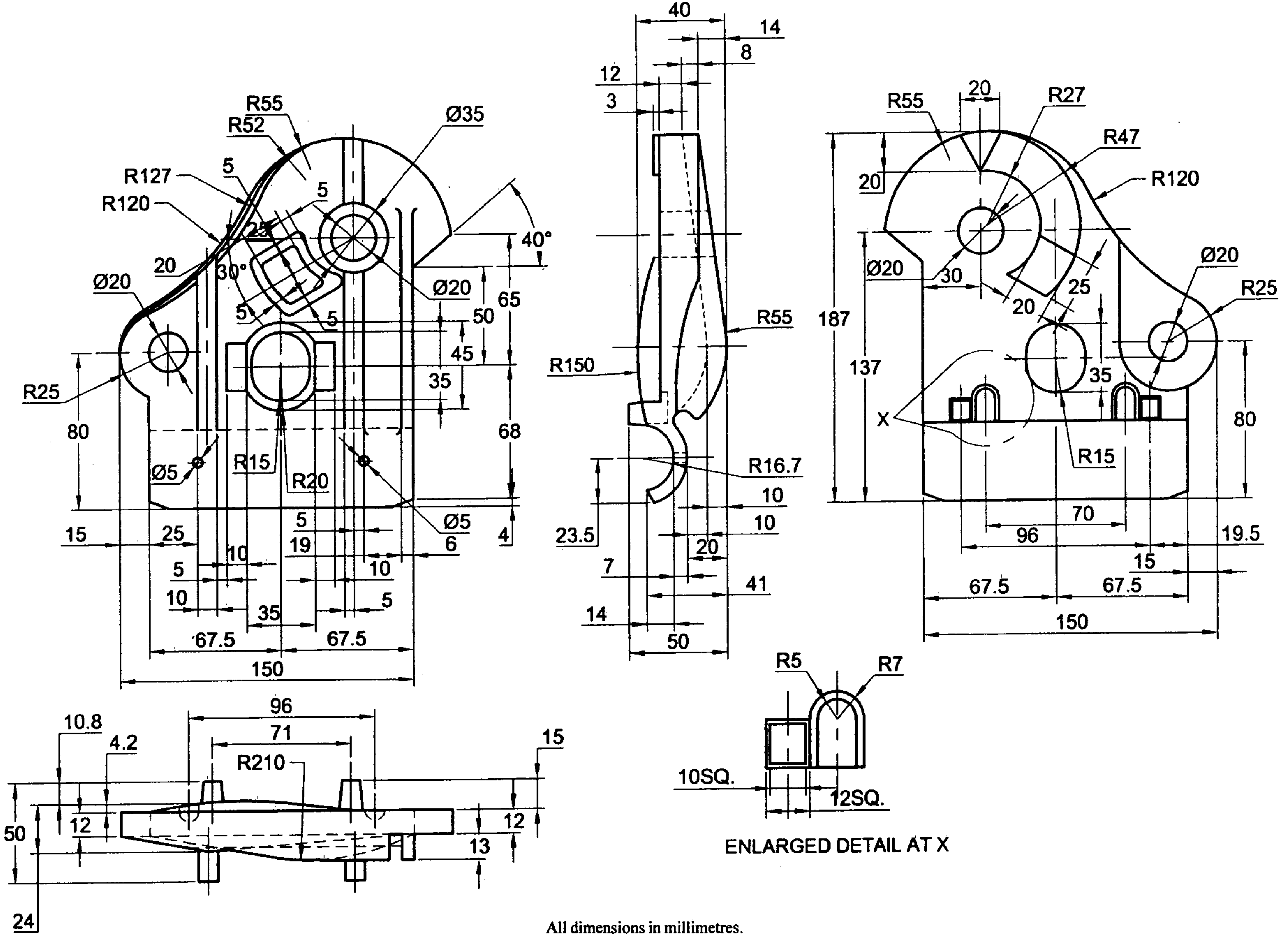


ENLARGED DETAIL AT X



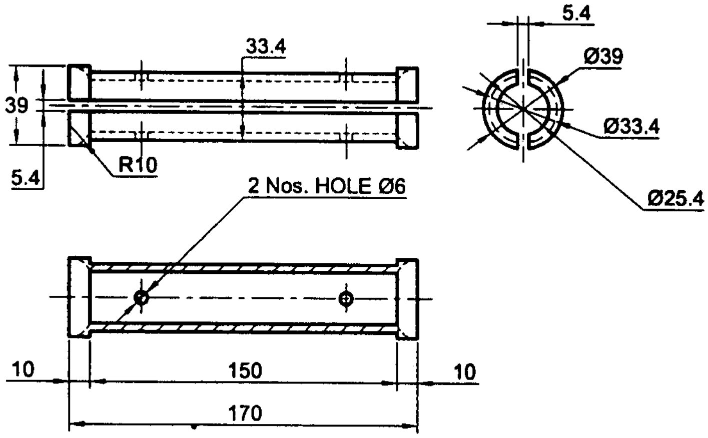
All dimensions in millimetres.

3.3.2 *Cheeks, Left Hand*



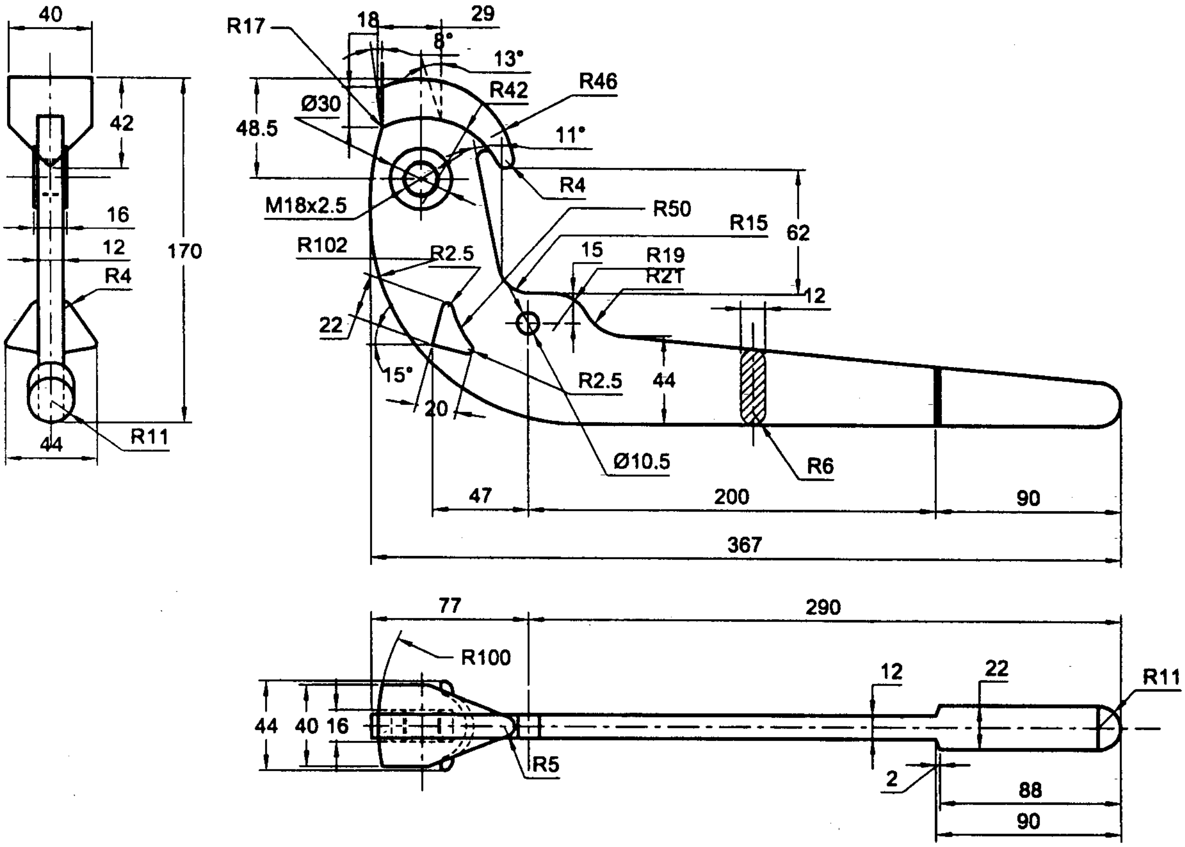
All dimensions in millimetres.

3.3.3 *Liners with Rivet*



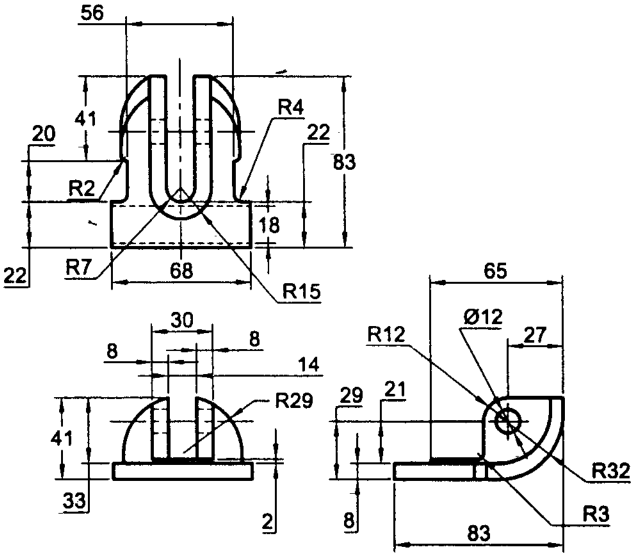
All dimensions in millimetres.

3.3.4 *Lever*



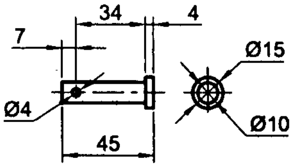
All dimensions in millimetres.

3.3.5 *Safety Catch*



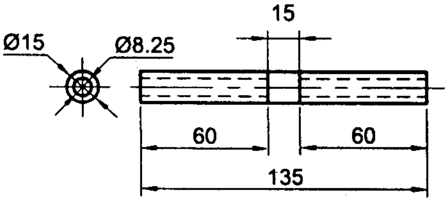
All dimensions in millimetres.

3.3.6 *Lever Pin with Split Pin*



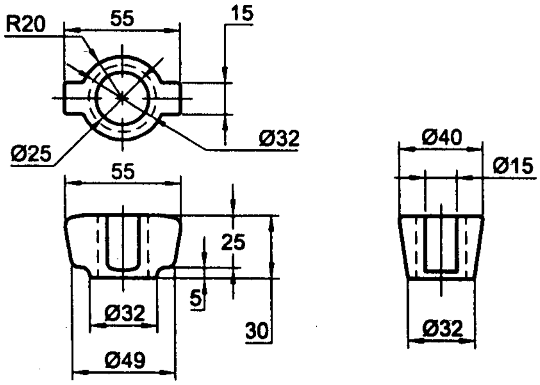
All dimensions in millimetres.

3.3.7 *Pivot*



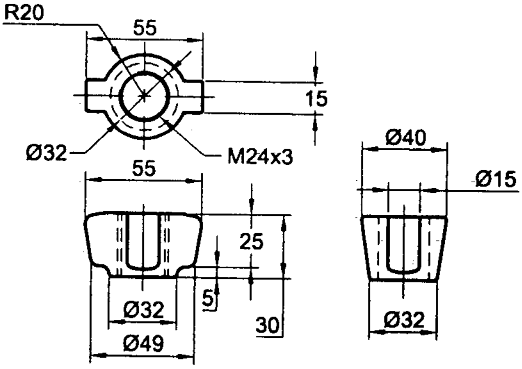
All dimensions in millimetres.

3.3.8 *Threadless Nut*



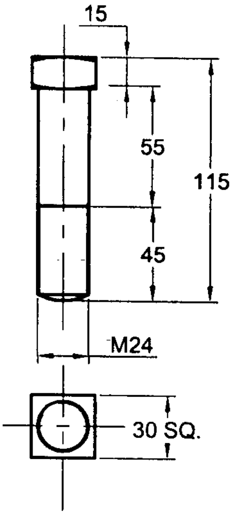
All dimensions in millimetres.

3.3.9 *Nut*



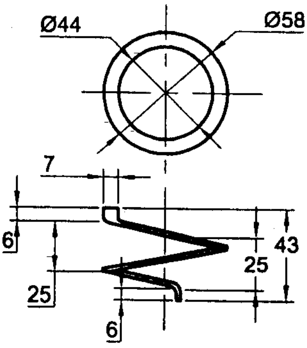
All dimensions in millimetres.

3.3.10 *Centre Bolt*



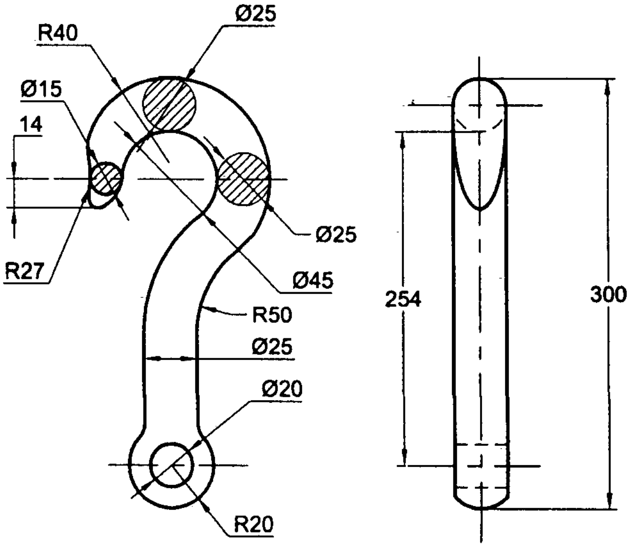
All dimensions in millimetres.

3.3.11 *Spring*



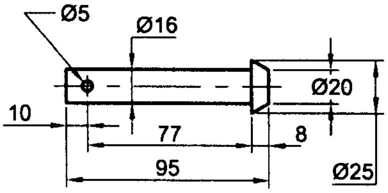
All dimensions in millimetres.

3.3.12 *Hook*



All dimensions in millimetres.

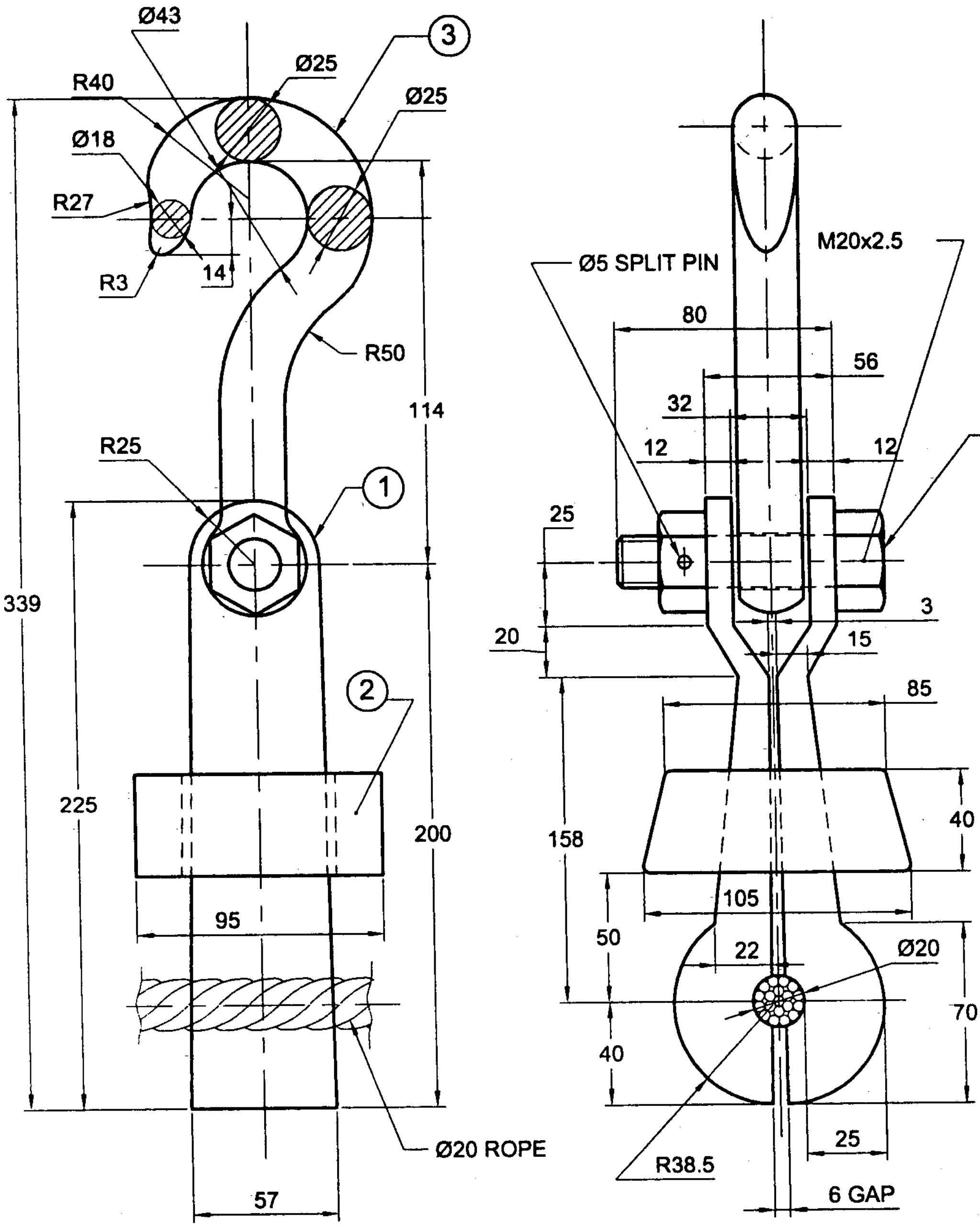
3.3.13 *Hook Pin with Split Pin*



All dimensions in millimetres.

3.4 Assembly, nomenclature and materials for various components of wedge clip shall be as given below:

Component No.	*Component Name*	*Quantity*	*Material Specification*
1.	Body (Left hand-right hand)	1 set	20C15 IS 5517
2.	Band	1	do
3.	Hook	1	do
4.	Bolt nut	1	do



All dimensions in millimetres.

4 GENERAL REQUIREMENTS

For general requirements, IS 9170 (Part 1) shall apply.

5 MANUFACTURE AND WORKMANSHIP

5.1 The manufacturer shall be reliable having at his works adequate facilities for proper forging, machining, heat treatment and testing of the product. Forge welding of steel shall not be done. Electrical welding shall be done where necessary and where arc welding is done, slag shall be carefully cleaned at each stage. Holes, if any, shall be drilled instead of being punched. Jointing shall be done by electric welding and shall not be by smith welding.

5.2 Every part of the unit shall give evidence of good workmanship and good finish, shall be free from defects and made to the standard limits of tolerances on the dimensions and finishing, etc.

5.3 The clips shall be so manufactured as to correctly match with the size and construction of the rope.

6 MARKING

6.1 For marking, IS 9170 (Part 1) shall apply.

6.2 BIS Certification Marking

All clips may also be marked with BIS Standard Mark.

6.2.1 The use of the standard mark is governed by the provisions of the *Bureau of Indian Standards Act,* 1986 and the Rules and Regulations made thereunder. The details of conditions under which a licence for the use of the Standard Mark may be granted to the manufacturers or producers may be obtained from the Bureau of Indian Standards.

7 HEAT TREATMENT

For heat treatment, IS 9170 (Part 1) shall apply.

8 TESTS

For tests, IS 9170 (Part 1) shall apply.

9 CERTIFICATE OF TEST AND EXAMINATION

For certificate of test and examination, IS 9170 (Part 1) shall apply.

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Mining Techniques and Equipment Sectional Committee, ME 08

Organization	*Representative(s)*
Directorate General of Mines Safety, Dhanbad	Shri Y. K. Sharma (***Chairman***)
	Shri Anup Viswas (*Alternate*)
Bharat Coking Coal Ltd, Dhanbad	Shri Ramji Sahay
Bharat Earth Movers Ltd, Bangalore	Shri V. Palaniswamy
	Shri T. R. Loganathan (*Alternate*)
Central Coalfields Ltd, Ranchi	Chief General Manager (Operations)
	Chief General Manager (Equipments) (*Alternate*)
Central Mine Planning & Design Institute Ltd, Ranchi	Shri S. K. Chatterji
	Shri Kishore Kumar (*Alternate*)
Central Mining Research Institute, Dhanbad	Shri V. N. Pathak
Eimco Elecon (India) Ltd, Vallabh Vidyanagar	Shri A. M. Deshpande
	Shri Ravindra Luthra (*Alternate*)
Gujarat Mineral Development Corporation, Ahmedabad	Shri S. N. Mathur
Hindalco Industries Ltd, District Sonbhadra	Shri K. K. Patodia
	Shri Ashok Bamji (*Alternate*)
Hindustan Copper Ltd, Kolkata	Shri Kamalesh Singh
	Shri O. P. Bhardwaj (*Alternate*)
Hindustan Zinc Ltd, Udaipur	Shri K. C. Jain
Indian Bureau of Mines, Goa	Shri Ranjan Sahai
Kapur Mining Equipment Pvt Ltd, Asansol	Shri Dipak Kapur
	Shri Tapan Dutta (*Alternate*)
Mahanadi Coalfields Limited, Dist Sambalpur	Shri R. B. Upadhyay
	Shri B. P. Pattnaik (*Alternate*)
Manganese Ore (India) Ltd, Nagpur	Shri P. M. Reddy
	Shri G. Wangneo (*Alternate*)
Nanda Millar Co, Kolkata	Shri J. P. Goenka
	Shri Pankan Goenka (*Alternate*)
National Aluminium Co Ltd, New Delhi	Shri R. C. Pati
	Shri C. M. D. Murty (*Alternate*)
National Mineral Development Corporation, Hyderabad	Shri P. Karyampudi
	Dr Rajendra Singh (*Alternate*)
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